ASOS MODIFICATION NOTE 53 (for Electronics Technicians)
Engineering Division
W/OSO321:WW/WDW
Revision Date: 09/23/99

SUBJECT	:	Class I Automated Surface Observing System (ASOS) Solid State Time Delay Relay (SSTDR) for the Single Cabinet ASOS (SCA)
PURPOSE	:	The addition of a SSTDR is to ensure a proper reset of the Class I SCA ASOS system (*systems without an Uninterruptible Power Supply (UPS)*) during an interruption of power.
EQUIPMENT AFFECTED	:	ASOS Class I SCA
PARTS REQUIRED	:	Field Modification Kit (FMK): S100-077C (Class I SCA)
MOD PROCUREMENT	:	FMK 077C will be initial issue by Washington Central Support and is required for all Class I SCA ASOS sites.
EFFECTIVITY	:	All Class I SCA ASOS sites (systems <u>without</u> an UPS installed).
SPECIAL TOOLS REQUIRED	:	Drill Drill bit, size: 5/32 inch (0.15625) Drill stop
TIME REQUIRED	:	3 hours per SSTDR
EFFECT ON OTHER INSTRUCTIONS	:	Modification Notes 47 and 50 must be installed prior to or in conjunction with this modification.
AUTHORIZATION	:	This modification is authorized by ECP **S98SM05F187C**.
VERIFICATION STATEMENT	:	This modification was tested for operational integrity at the operational test and evaluation (OT&E) sites listed in appendix A.

GENERAL

This modification note provides procedures to install a SSTDR in the Class I SCA. Class I systems are those that do *not* have an UPS installed. When an interruption or loss of power occurs, the SSTDR delays the activation of the Class I system for 3 seconds. This ensures a proper reset of the ASOS's pressure sensors and power supplies.

PROCEDURE

The following instructions are for the installation of the SSTDR in the Class I SCA.

BEFORE INSTALLATION OF THE SCA SSTDR

1. Ensure the FMK has all the parts listed in appendix B.

2. Contact the AOMC at 1-800-242-8194 and provide notification on which ASOS the SSTDR will be installed.

3. Get approval of the responsible MIC/OIC/Observer before starting installation. The SSTDR may be installed on any day of the month if restrictions in steps 3 and 4 are satisfied.

4. **Commissioned sites only:** Do not start installation during inclement weather, precipitation, instrument flight rule conditions, or if any of those conditions are expected within 3 hours. The responsible MIC/OIC/Observer will define those meteorological conditions.

5. Do not start the SSTDR installation at a time that will conflict with scheduled synoptic observations at 00, 03, 06, 09, 12, 15, 18, and 21Z. Although 2.0 hours ***per*** SSTDR should be sufficient, allow 3.0 hours ***per*** SCA to complete installation and restart the ASOS.

6. Immediately before working at National Weather Service (NWS)-staffed sites, the MIC/OIC/Observer will inform the air traffic control tower (ATCT), and any other critical users, ASOS will be shut off for SSTDR(s) installation (for unstaffed sites, the electronics technician will inform the ATCT).

7. Do not begin the installation process until immediately after an hourly observation has been transmitted. At NWS-staffed sites, normal back-up observing procedures will be implemented.

8. Make the appropriate SYSLOG entries, (MAINT-ACT-FMK) Mod 53.
   a. Log on as **TECH**.
   b. Key the **MAINT** screen.
   c. Key the **ACT** page.
   d. Key **START** - Stop here and perform “INSTALLATION OF THE SCA SSTDR.”

INSTALLATION OF THE SCA SSTDR

A. Class I SCA SSTDR:

WARNING

Ensure the AC power is completely removed from the SCA. Death or severe injury may result if power is not completely removed from the SCA prior to installing the SSTDR.

1. Open the SCA enclosure door and remove power from the circuit breaker CB21 by placing the switch in the **OFF** position.

2. At the AC junction box, open and remove power to the SCA by placing the main circuit breaker in the **OFF** position.

Note:

To accommodate the 7A1A1A13-K1 assembly, the 5-plug power outlet strip must be removed, rotated 90° to a horizontal position, and reinstalled just as if this were a Class II SCA with an UPS installed above the battery compartment and below the UPS support tray. (Refer to figure 1 below).

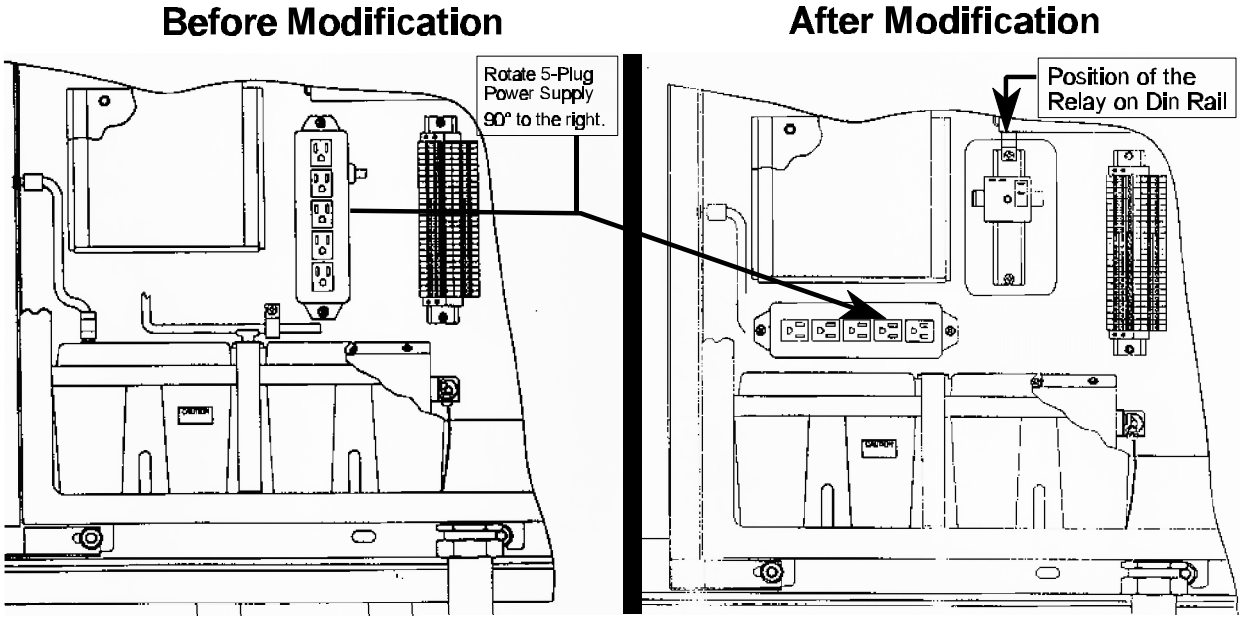

Figure 1 SCA Modification Diagrams for SCA SSTDR Installation

3. Remove all plugs from the 5-plug power outlet strip.

4. Remove the 5-plug power outlet strip, saving all hardware.

5. Using the power outlet strip as a template, place the power outlet strip above the battery compartment (as in **Figure 1, Before Modification**) and mark where the two holes will need to be drilled for remounting.

6. Using the 7A1A1A13 assembly as a template, line the top hole of the 7A1A1A13 Din Rail with the top hole of where the 5-plug power outlet strip was originally, and mark where the bottom hole will be drilled.

7. Using a drill bit (5/32-inch), drill the three premarked holes in the A1 backplate. Use of a drill stop set at ¼-inch is recommended to prevent damage to the cabinet when drilling.

8. Clip the SSTDR bracket on the Din Rail.

9. Install the SSTDR on the bracket, using the machine screw . Be sure to install the end clamps on each side of the SSTDR.

10. Install the SCA SSTDR assembly, 7A1A1A13-K1, and the 5-Plug power outlet strip, as shown in figure 1, using the machine screws, flat washers, and lock washers, *hardware saved from the removal of the power outlet strip*, **and** self-tapping screws, flat washers, and lock washers, *where holes were drilled.*

Note:

The SCA power distribution block (PDB) may need to be loosened from the A1 backplate to connect wires along the right side of the PDB.

11. On the SCA PDB, 7A1A1A4, remove the following wire: (GRY 14) from **7A1A1A4-1B**.

12. Connect the following wires between the PDB, 7A1A1A4, and the SCA SSTDR: (Refer to Figures 2 and 3).

Note:

When making connections to the PDB, ensure the wires are not inserted too far into their terminals. If this occurs and the terminal screw is tightened down, wire insulation may prevent contact from taking place.

Note:
Check each connection made to the PDB by giving a slight tug on each wire.

Wire from FMK (Gauge + Color)	Wire from FMK (Wire Number)	To Location on the PDB	SCA Wire Number
14GRY	7A1A13K1-1	7A1A1A4-1C	SCA W #1
14GRY	7A1A13K1-2	7A1A1A4-1B	SCA W #2
14WHT	7A1A13K1-3	7A1A1A4-9C	SCA W #4
14GRY	7A1A13K1-4*	P36-1*	SCA W #3

*Splice the FMK wire 7A1A13K1-4 to the wire removed in step 11 using a butt splice. Likewise, a piece of 14-gauge wire may be used to complete this connection between K1-4 and P36-1.

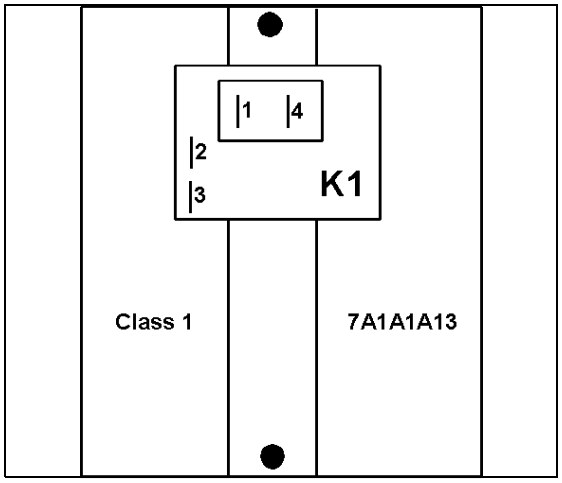

Figure 2 7A1A1A13-K1 Assembly

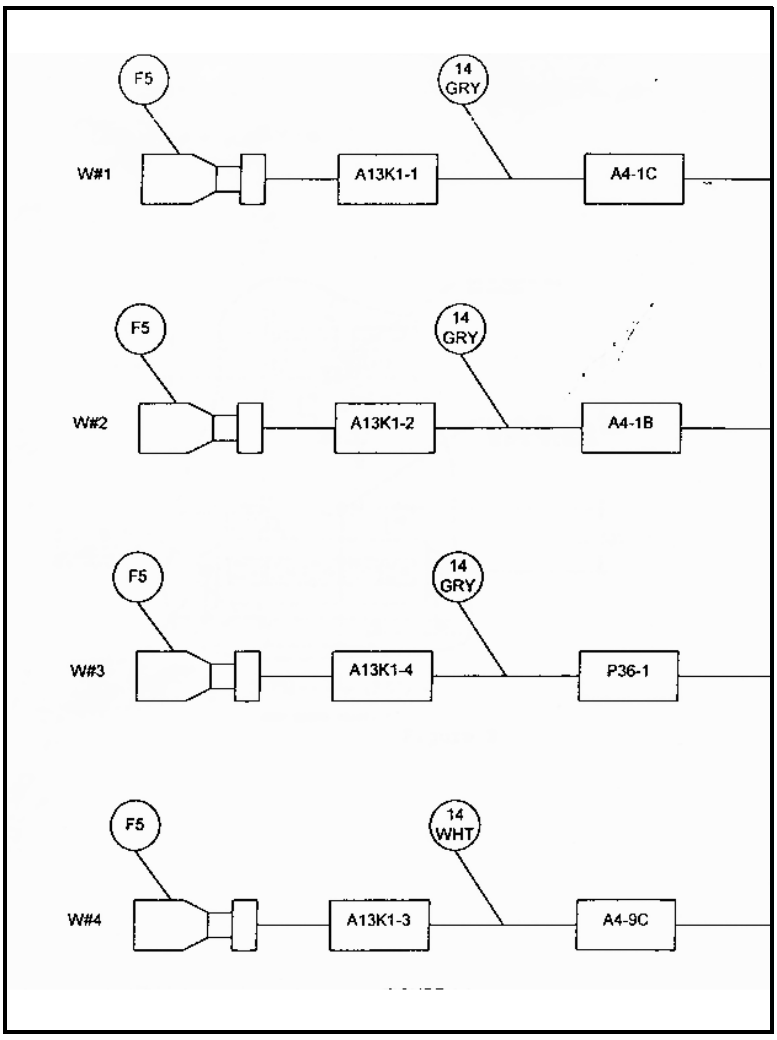

Figure 3 SCA SSTDR Wiring

13. Spot tie the wiring harness, just installed, to an existing harness using the 3-1/2 long wire tie wraps.

Note:
When power is reapplied to the SCA, there will be approximately a 3-second delay until the SCA begins to run.

14. Return the AC facility power to the SCA from the junction box.

15. Reinstate power from the circuit breaker CB21 to the SCA.

16. Proceed to "VERIFICATION PROCEDURE OF THE SCA SSTDR."

VERIFICATION PROCEDURE FOR THE SCA SSTDR

1. Return to the OID and log on as **TECH**.

2. Proceed to the 12-Hour page (**REVUE**-**SENSOR**-**12-HR**) and ensure the data is being

collected from the sensors. Then key **EXIT**.

3. Proceed to the maintenance pages (**MAINT)** and clear all failures for the ACU and DCP that were caused by powering the system down.

4. When complete, key **EXIT**.

5. Proceed to "AFTER INSTALLATION OF THE SCA SSTDR."

AFTER INSTALLATION OF THE SCA SSTDR

1. Call the AOMC at 1-800-242-8194 and inform the operator of:
   a. Your location.
   b. The installation of the SSTDR has been completed.

2. Enter in the SYSLOG that maintenance has been completed.
   a. Key the **MAINT** screen.
   b. Key the **ACT** page.
   c. Key **FMK** - Enter the Field Mod Kit (FMK) number as follows: **Mod 53**. On the second line of the screen, verify that only Mod 53 is displayed. Complete by entering **Y** in the [Y/N] area if only Mod 53 is displayed. If other modifications are completed, make the appropriate log entry.
   d. Check the SYSLOG and verify the FMK message. Enter a comment in the SYSLOG stating the SSTDR has been installed.

REPORTING MODIFICATION

Target date for completion of this modification is 30 days for commissioned sites and 45 days for non-commissioned sites, after the receipt of parts. Report the completed modification on an NWS Form A-26, Maintenance Record, appendix B, using the instructions in Engineering Handbook No. 4 (EHB-4), Engineering Management Reporting System (EMRS), part 2, appendix F. Report the modification to the SCA using the equipment code **ASCA** in block 7. Record a modification number of **53** in block_17a of the A-26.

Original Signed

John McNulty
Chief, Engineering Division
Appendix A - Test Sites
Appendix B - Parts List
Appendix C - A-26
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spellcheck6/7/99:src:9/22/99

The OT&E sites for the SSTDR are:

SID	CITY	STATE	Class of System (Class I or II)	Solid State Time Delay Relay (Qty)
DMH	Baltimore	MD	Class I	1

S100-FMK077C SCA Solid-State Time Delay Relay	
Quantity	**Nomenclature**
1	Insulated quick disconnect female crimp-on terminal on a gray wire labeled A1A4-1C
1	Insulated quick disconnect female crimp-on terminal on a gray wire labeled A1A4-1B
1	Insulated quick disconnect female crimp-on terminal on a gray wire labeled P36-1
1	Insulated quick disconnect female crimp-on terminal on a white wire labeled A1A4-9C
12	3-1/2" long wire tie wraps
1	Solid State Time Delay Relay (SSTDR)
1	SSTDR bracket
1	No. 8 Machine Screw, 1-1/4" long
1	Din rail
1	3 screw end clamp
1	A13 Label
1	K1 Label
1	A8 Label
3	No. 10 Lockwasher
3	7/32"ID x 1/2"OD Flatwasher
2	Self tapping screw

A-26 (EMRS)